

Abstract

A method for performing a gravel pack and/or frac pack by pumping down small tubes connected to nozzle chambers installed in the well screen in an open or cased hole of an oil, gas or water well. The well employs an open-hole wellbore adjacent to a substantial portion of an unconsolidated or poorly consolidated subterranean oil or gas reservoir. A well screen is located inside the open-hole wellbore forming an annulus between the open-hole and the well screen. One or more conduits are positioned in the annulus formed by the base pipe and the outer surface of the screen, and connected to corresponding exit nozzle chambers positioned at different levels on the screen. These are the primary conduits for the solids laden fluid to be transported to the exit nozzles attached to the well screen member that provide fluid communication between the conduit and the annulus between the open –hole and the well screen. The solids laden fluid is pumped to and out through the exit nozzles as the fluid dehydrates the solids (gravel) are deposited on the well screen as the fluid passes through leaving the annulus packed with gravel. This method is also applicable to gravel packing and/or frac packing in a cased wellbore with perforations for fluid communication between the cased wellbore and a substantial portion of an unconsolidated or poorly consolidated oil or gas reservoir.

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